Maximum Permissible Exposure Evaluation
FCC ID: 2A5OS-CA42

1. Client Information

Applicant	:	Shenzhen Tino Security Corp., LTD
Address	:	201, No.7, HeDian Industry Park FuMin Community, FuCheng Street, LongHua District, Shenzhen, China
Manufacturer	:	Shenzhen Tino Security Corp., LTD
Address	:	201, No.7, HeDian Industry Park FuMin Community, FuCheng Street, LongHua District, Shenzhen, China

2. General Description of EUT

EUT Name	:	IP Camera	
Model(s) No.	:	CA42, CA43, CA45, CA46, CA47, CA48, CA49, CA60, CA62, CA63, CA65, CA66, CA67, CA68, CA69, PT805, PT806, PT807, PT808, PT809, PT810, PT812, PT813, PT815, PT816, PT817, PT818, PT825	
Model Difference	:	All these models are identical in the same PCB, layout and electrical circuit, the only difference is different customers, different model name.	
Product Description	:	Operation Frequency:	2.4G WiFi: 2412MHz~2472MHz Bluetooth LE 5.0:2402MHz~2480MHz
		Antenna Gain:	0.5dBi PCB Antenna for BLE 0.92dBi Iron Plate Antenna for 2.4G WiFi
Power Supply	:	Input: DC 5V, 1.5A	
Software Version	:	----	
Hardware Version	:	----	
Remark: The antenna gain provided by the applicant, the adapter and verified for the RF conduction test and adapter provided by TOBY test lab.			

Note: More test information about the EUT please refer the RF Test Report.

1/F.,Building 6, Rundongsheng Industrial Zone, Longzhu, Xixiang, Bao'an District, Shenzhen, Guangdong, China
Tel: +86 75526509301 Fax: +86 75526509195

MPE Calculations

1. **Antenna Gain:**

   PCB Antenna for BLE: 0.5dBi.
   Iron Plate Antenna for 2.4G WiFi: 0.92dBi.

2. **EUT Operation Condition:**

   Software provided by client enabled the EUT to transmit and receive data at lowest, middle and highest channel individually.

3. **Exposure Evaluation:**

   Equation from page 18 of OET Bulletin 65, Edition 97-01

   $S=(PG)/4\pi R^2$

   Where

   S: power density
   P: power input to the antenna
   G: power gain of the antenna in the direction of interest relative to an isotropic radiator.
   R: distance to the center of radiation of the antenna

4. **Test Result:**

Worst Maximum MPE Result								
BLE								
Mode	N TX	Freq. (MHz)	Conducted Power(max) (dBm)	Turn-up Power (dB)	Max tune up power (dBm) [P]	ANT Gain (dBi) [G]	Distance (cm) [R]	Power Density (mW/ cm^2) [S]
1Mbps	1	2402	-2.503	-3±1	-2	0.5	20	0.00014
		2440	-3.301	-3±1	-2	0.5	20	0.00014
		2480	-3.699	-4±1	-3	0.5	20	0.00011
2.4G WiFi								
802.11b	1	2412	16.065	16±1	17	0.92	20	0.0123
		2437	15.204	15±1	16	0.92	20	0.0098
		2462	15.652	16±1	17	0.92	20	0.0123
802.11g	1	2412	14.032	14±1	15	0.92	20	0.0078
		2437	13.223	13±1	14	0.92	20	0.0062
		2462	12.675	13±1	14	0.92	20	0.0062
802.11n20	1	2412	13.991	14±1	15	0.92	20	0.0078
		2437	13.271	13±1	14	0.92	20	0.0062
		2462	12.666	13±1	14	0.92	20	0.0062
802.11n40	1	2422	13.12	13±1	14	0.92	20	0.0062
		2437	12.249	12±1	13	0.92	20	0.0049
		2452	12.177	12±1	13	0.92	20	0.0049

Note:
(1) N_{TX}= Number of Transmit Antennas
(2) RF Output power specifies that Maximum Conducted Peak Output Power.

5. Conclusion:

As specified in Table 1B of 47 CFR 1.1310- Limits for Maximum Permissible Exposure (MPE),

Limits for General Population/ Uncontrolled Exposure

Frequency Range (MHz)	Power density (mW/cm^2)
300-1,500	F/1500
1,500-100,000	1.0

For BLE&2.4GWIFI

MPE limit S: $1mW/cm^2$

WIFI MPE (Ratio)	BLE MPE (Ratio)	simultaneous MPE (Ratio)	MPE Limits (Ratio)
0.0123	0.00014	0.01244	1.0000

So, RF exposure limit warning or SAR test are not required.

The EUT will only be used with a separation of 20cm or greater between the antenna and nearby persons and can therefore be considered a mobile transmitter per 47 CFR2.1091 (b).

The RF Exposure Information page from the manual is included here for reference.

Note

For a more detailed features description, please refer to the RF Test Report.

6. Conclusion:

The measurement results comply with the FCC Limit per 47 CFR 2.1091 for the uncontrolled RF Exposure of mobile device.

-----END OF REPORT-----